TONG YUZHOU

Nanyang Technological University
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EDUCATION

Nanyang Technological University Singapore
Supervisor: Prof. Lin Zhiping
Master of Science in Communications Engineering Aug 2022 – Dec 2023
Culmulative GPA: 4.42/5.00

The Chinese University of Hong Kong, Shenzhen Shenzhen, China
Bachelor of Engineering in Electronic Information Engineering Sep 2018 – June 2022
Cumulative GPA: 3.25/4.00, Major GPA: 3.40/4.00

PUBLICATIONS

* indicates equal contribution

[ICCC 2023] **Rate Adaptation with Correlated Multi-Armed Bandits in 802.11 Systems**
Yuzhou Tong*, Jiakun Fan*, Xuhong Cai, Yi Chen
The 12th IEEE/CIC International Conference on Communications in China

[ICIEA 2023] **Encrypted Mobile Traffic Classification with a Few-shot Incremental Learning Approach**
Yongming Chen***, Yuzhou Tong****,* Gwee Bah Hwee, Qi Cao, Sirajudeen Gulam Razul, Zhiping Lin
The 18th IEEE Conference on Industrial Electronics and Applications

[ISCAS 2023] **Real-time Traffic Monitor in Encrypted Wireless Communication Network**
Yongming Chen**, Yuzhou Tong,** Gwee Bah Hwee, Qi Cao, Sirajudeen Gulam Razul, Zhiping Lin
The 56th IEEE International Symposium on Circuits and Systems

PREPRINTS

A Method for Out-of-Distribution Detection in Encrypted Mobile Traffic Classification
Yuzhou Tong*, Yongming Chen, Gwee Bah Hwee, Qi Cao, Sirajudeen Gulam Razul, Zhiping Lin
Submitted to the 49th Annual Conference of the IEEE Industrial Electronics Society (IECON 2023)

RESEARCH EXPERIENCE

Research assistant in Communication Research Lab, NTU Aug 2022 – Aug 2023

Human Activity Classification with Cellular Base-station Traffic, supervised by Prof. Lin Zhiping

- Used Universal Software Radio Peripheral (USRP) and the packet analysis software, Airscope and Wireshark to collect Downlink Control Information (DCI). Wrote Python scripts to process the raw data to a data set.
- Proposed an incremental learning framework using rehearsal and knowledge distillation techniques with the Long Short-Term Memory (LSTM) network for traffic classification.
- Proposed an out-of-distribution detection scheme for mobile encrypted traffic classification based on principal component analysis (PCA) in combination with an LSTM network.

Research Assistant in Singapore-ETH Center Future Resilient Systems, NUS Feb 2023 – June 2023

Dynamic Mobile Sensing Platform (DMSP) Development, supervised by Prof. Eleni Chatzi

- Designed the architecture of the DMSP, and selected software, devices, and techniques to implement the functionalities of the platform.
- Developed the data collection functionality using a Raspberry Pi 4B equipped with the MPU-6050 acceleration sensor and the L76X GPS hat. Wrote Python scripts to control the devices and process the collected data.
- Developed the data transmission functionality using the SIM7080 NB-IoT module for network access and the MQTT protocol for data transmission, so that the device can work in outdoor environments and transmit data through the LTE network.
- Developed the data visualization dashboard using the visualization platform, Grafana with the open-source monitoring system Prometheus, and the metrics exporter software, Telegraf to monitor the real-time status of the pavement facilities.

Research assistant in Network Coding Lab, CUHK-Shenzhen Jan 2022 – Jan 2023

Rate Adaptation with Correlated Multi-Armed Bandits in 802.11 Systems, supervised by Prof. Chen Yi

- Formulated the physical rate adaptation problem in the Wi-Fi system as a multi-armed bandit (MAB) problem and proposed a rate adaptation algorithm using a correlated MAB model to enhance the efficiency of rate adaptation.
- Formulated the rate adaptation problem as a Markov Decision Problem (MDP) and proposed a Q-learning based method to enhance the throughput of the system.
- Implemented the rate adaptation algorithm in the mac80211 module and built the test bed using a Raspberry Pi 4B and a Dongtintech AIMB-B2205A industrial computer to validate the proposed algorithms.

SELECTED AWARDS AND HONORS

- Dean's List (Top 15%), School of Science and Engineering, CUHK(SZ) 2019-2020

CONTRIBUTED PRESENTATIONS

- Rate Adaptation with Correlated Multi-Armed Bandits in 802.11 Systems July 2023
  ICCC 2023 Poster Presentation
- Encrypted Mobile Traffic Classification with a Few-shot Incremental Learning Approach Aug 2023
  ICIEA 2023 Oral Presentation